What is Claimed Is:

1. A supercharged, power-producing gas turbine system, said system comprising:

a gas turbine subsystem and an electrical generator, said gas turbine subsystem comprising a compressor, a burner, and a gas turbine, wherein a gas turbine subsystem input airstream is compressed by said compressor, heated by said burner, and expanded through said turbine to cause said turbine to rotate, whereby said turbine drives said generator to generate electrical power;

a supercharging subsystem comprising at least one supercharging fan which increases the pressure of said gas turbine subsystem input airstream, whereby power output of said turbine and hence electrical output of said electrical generator may be increased; and

a system controller;

wherein said system controller monitors at least one system parameter and controls operation of at least one system component such that as ambient temperature decreases, turbine power output, which otherwise would increase with decreasing ambient temperature, does not exceed maximum supercharged summer-peaking power output.

2. The supercharged, power-producing gas turbine system of claim 1, wherein said system controller monitors temperature of said turbine subsystem input airstream.

3. The supercharged, power-producing gas turbine system of claim 2, wherein said system controller controls operation of said at least one supercharging fan as a

function of the temperature of said turbine subsystem input airstream.

4. The supercharged, power-producing gas turbine system of claim 1, wherein said system controller monitors pressure of said turbine subsystem input airstream.

5. The supercharged, power-producing gas turbine system of claim 4, wherein said system controller controls operation of said at least one supercharging fan as a function of the pressure of said turbine subsystem input airstream.

6. The supercharged, power-producing gas turbine system of claim 1, wherein said system comprises two or more supercharging fans arranged in parallel, said supercharging fans pressurizing a plenum from which said turbine subsystem input airstream is drawn, said plenum having a bypass damper to permit operation of said system without supercharging fan-pressurization of said turbine subsystem input airstream.

7. The supercharged, power-producing gas turbine system of claim 1, wherein said system comprises two or more supercharging fans arranged in series.

8. The supercharged, power-producing gas turbine system of claim 1, wherein said supercharging subsystem comprises a first air cooler disposed between said at least one supercharging fan and said gas turbine subsystem so as to cool said gas turbine subsystem input airstream.

9. The supercharged, power-producing gas turbine system of claim 8, wherein said first air cooler comprises a direct evaporative cooler.

10. The supercharged, power-producing gas turbine system of claim 8, wherein a secondary airstream is drawn from said gas turbine subsystem input airstream and passed back through said first air cooler to enhance cooling performance of said first air cooler.

11. The supercharged, power-producing gas turbine system of claim 8, wherein said system controller controls operation of said first air cooler as a function of said at least one monitored system parameter.

12. The supercharged, power-producing gas turbine system of claim 11, wherein said first air cooler is an indirect evaporative cooler, said indirect evaporative cooler being disposed in a circuit including a pump and a cooling tower.

13. The supercharged, power-producing gas turbine system of claim 12, wherein said cooling tower is a forced-draft wet tower.

14. The supercharged, power-producing gas turbine system of claim 11, further comprising a second air cooler disposed upstream of said at least one supercharging fan, wherein said system controller also controls operation of said second air cooler as a function of said at least one monitored system parameter.

15. The supercharged, power-producing gas turbine system of claim 1, wherein said system controller monitors ambient air temperature.

16. The supercharged, power-producing gas turbine system of claim 15, wherein said system controller controls operation of said at least one supercharging fan as a function of the ambient air temperature.

17. The supercharged, power-producing gas turbine system of claim 1, wherein said system controller monitors electrical output of said electrical generator and controls operation of said at least one system component as a function thereof.

18. The supercharged, power-producing gas turbine system of claim 1, wherein a recirculation flow system feeds a portion of a compressor outlet airstream back into said gas turbine subsystem input airstream and said system controller controls operation of said recirculation flow system as a function of said at least one monitored system parameter.

19. The supercharged, power-producing gas turbine system of claim 1, wherein said controller controls operation of said burner as a function of said at least one monitored system parameter.

20. The supercharged, power-producing gas turbine system of claim 1, wherein said system further comprises an airstream heater located upstream of said compressor

and said system controller controls operation of said airstream heater as a function of said at least one monitored system parameter.

21. The supercharged, power-producing gas turbine system of claim 20, wherein said system controller monitors the temperature of said gas turbine subsystem input airstream and controls operation of said airstream heater as a function thereof.

22. The supercharged, power-producing gas turbine system of claim 20, wherein said airstream heater comprises a first heat exchanger through which circulates a heat-exchanging fluid, said heat-exchanging fluid circulating through a second heat exchanger in which said heat-exchanging fluid absorbs exhaust heat from said gas turbine.

23. The supercharged, power-producing gas turbine system of claim 22, wherein said system comprises a combined-cycle power plant and further includes an auxiliary steam cycle subsystem, said auxiliary steam cycle subsystem utilizing the exhaust heat from said gas turbine to generate additional electrical power.

24. The supercharged, power-producing gas turbine system of claim 1, wherein said supercharging subsystem comprises a variable drive which drives said at least one supercharging fan.

25. The supercharged, power-producing gas turbine system of claim 1, wherein said gas turbine subsystem and said generator are pre-existing and said supercharging

subsystem and said system controller are provided by means of a retrofit.

26. A supercharging subsystem for use in a supercharged, power-producing gas turbine system, said supercharged, power-producing gas turbine system comprising a gas turbine subsystem and an electrical generator, said gas turbine subsystem comprising a compressor, a burner, and a gas turbine, wherein a gas turbine subsystem input airstream is compressed by said compressor, heated by said burner, and expanded through said turbine to cause said turbine to rotate, whereby said turbine drives said generator to generate electrical power, said supercharging subsystem comprising:

at least one supercharging fan which increases the pressure of said gas turbine subsystem input airstream, whereby power output of said turbine and hence electrical output of said electrical generator may be increased; and

a system controller;

wherein said system controller monitors at least one system parameter and controls operation of at least one system component such that as ambient temperature decreases, turbine power output, which otherwise would increase with decreasing ambient temperature, does not exceed maximum supercharged summer-peaking power output.

27. The supercharging subsystem of claim 26, wherein said system controller monitors temperature of said turbine subsystem input airstream.

28. The supercharging subsystem of claim 27, wherein said system controller

controls operation of said at least one supercharging fan as a function of the temperature of said turbine subsystem input airstream.

29. The supercharging subsystem of claim 26, wherein said system controller monitors pressure of said turbine subsystem input airstream.

30. The supercharging subsystem of claim 29, wherein said system controller controls operation of said at least one supercharging fan as a function of the pressure of said turbine subsystem input airstream.

31. The supercharging subsystem of claim 26, wherein said system comprises two or more supercharging fans arranged in parallel, said supercharging fans pressurizing a plenum from which said turbine subsystem input airstream is drawn, said plenum having a bypass damper to permit operation of said system without supercharging fan-pressurization of said turbine subsystem input airstream.

32. The supercharging subsystem of claim 26, wherein said system comprises two or more supercharging fans arranged in series.

33. The supercharging subsystem of claim 26, wherein said supercharging subsystem comprises a first air cooler disposed between said at least one supercharging fan and said gas turbine subsystem so as to cool said gas turbine subsystem input airstream.

34. The supercharging subsystem of claim 33, wherein said first air cooler comprises a direct evaporative cooler.

35. The supercharging subsystem of claim 33, wherein a secondary airstream is drawn from said gas turbine subsystem input airstream and passed back through said first air cooler to enhance cooling performance of said first air cooler.

36. The supercharging subsystem of claim 33, wherein said system controller controls operation of said first air cooler as a function of said at least one monitored system parameter.

37. The supercharging subsystem of claim 36, wherein said first air cooler is an indirect evaporative cooler, said indirect evaporative cooler being disposed in a circuit including a pump and a cooling tower.

38. The supercharging subsystem of claim 37, wherein said cooling tower is a forced-draft wet tower.

39. The supercharging subsystem of claim 36, further comprising a second air cooler disposed upstream of said at least one supercharging fan, wherein said system controller also controls operation of said second air cooler as a function of said at least one monitored system parameter.

40. The supercharging subsystem of claim 26, wherein said system controller monitors ambient air temperature.

41. The supercharging subsystem of claim 40, wherein said system controller controls operation of said at least one supercharging fan as a function of the ambient air temperature.

42. The supercharging subsystem of claim 26, wherein said system controller monitors electrical output of said electrical generator and controls operation of said at least one system component as a function thereof.

43. The supercharging subsystem of claim 26, wherein a recirculation flow system feeds a portion of a compressor outlet airstream back into said gas turbine subsystem input airstream and said system controller controls operation of said recirculation flow system as a function of said at least one monitored system parameter.

44. The supercharging subsystem of claim 26, wherein said controller controls operation of said burner as a function of said at least one monitored system parameter.

45. The supercharging subsystem of claim 26, wherein said subsystem further comprises an airstream heater located upstream of said compressor and said system controller controls operation of said airstream heater as a function of said at least one monitored system parameter.

46. The supercharging subsystem of claim 45, wherein said system controller monitors the temperature of said gas turbine subsystem input airstream and controls operation of said airstream heater as a function thereof.

47. The supercharging subsystem of claim 45, wherein said airstream heater comprises a first heat exchanger through which circulates a heat-exchanging fluid, said heat-exchanging fluid circulating through a second heat exchanger in which said heat-exchanging fluid absorbs exhaust heat from said gas turbine.

48. The supercharging subsystem of claim 26, wherein said supercharging subsystem comprises a variable drive which drives said at least one supercharging fan.

49. A method of operating a supercharged, power-producing gas turbine system, said method comprising monitoring at least one system parameter and controlling operation of at least one system component such that as ambient temperature decreases, power output of said gas turbine system does not exceed maximum supercharged summer-peaking power output of said system.

50. A duct for conveying a high-pressure fluid, said duct comprising an interior conduit disposed within an exterior conduit, said interior conduit having a polygonal cross-section and said exterior conduit having an arcuate cross-section, said interior conduit and said exterior conduit defining a space therebetween and said interior conduit having a flow passage in a wall thereof to provide fluid communication and equalize

pressure between the interior of said interior conduit and said space.

51. The duct of claim 50, wherein said interior conduit has a rectangular cross-section.

52. The duct of claim 51, wherein said duct is a flow diffuser or flow accelerator duct and said interior conduit has a tetrahedral or pyramidoidal cross-section.

53. The duct of claim 50, wherein said exterior conduit has a circular cross-section.

54. The duct of claim 53, wherein said duct is a flow diffuser or flow accelerator duct and said exterior conduit has a conical cross-section.

55. The duct of claim 50, wherein said flow passage is provided by means selected from the group consisting of an aperture, a series of apertures, and a porous surface.

56. The duct of claim 50, wherein said space is filled with fluid or a porous material.

57. The duct of claim 50, wherein said interior conduit is supported within said exterior conduit by means of vertices of said interior conduit engaging inner surfaces of

said exterior conduit.

58. A supercharged, power-producing gas turbine system, said system comprising:

a gas turbine subsystem and an electrical generator, said gas turbine subsystem comprising a compressor, a burner, and a gas turbine, wherein a gas turbine subsystem input airstream is compressed by said compressor, heated by said burner, and expanded through said turbine to cause said turbine to rotate, whereby said turbine drives said generator to generate electrical power;

a supercharging subsystem comprising at least one supercharging fan which increases the pressure of said gas turbine subsystem input airstream, whereby power output of said turbine and hence electrical output of said electrical generator may be increased;

a system controller;

wherein said system controller monitors at least one system parameter and controls operation of at least one system component such that as ambient temperature decreases, turbine power output, which otherwise would increase with decreasing ambient temperature, does not exceed maximum supercharged summer-peaking power output; and

a duct for conveying a high-pressure airstream through said system, said duct comprising an interior conduit disposed within an exterior conduit, said interior conduit having a polygonal cross-section and said exterior conduit having an arcuate cross-section, said interior conduit and said exterior conduit defining a space therebetween and

said interior conduit having a flow passage in a wall thereof to provide fluid communication and equalize pressure between the interior of said interior conduit and said space.

59. A supercharged gas-turbine power plant, comprising:

a gas turbine power system including a compressor, a burner and a gas turbine, wherein an inlet air stream fed to said power system is compressed by said compressor, heated by said burner, and expanded through said turbine to cause said turbine to rotate, whereby said turbine drives an electrical generator to generate electrical power; and

a plurality of supercharging fans located upstream of said power system for increasing the pressure of said inlet air stream fed to said power plant.

60. The supercharger of claim 59, wherein said plurality of supercharging fans are in a parallel flow configuration.

61. The supercharger of claim 60, further comprising means for preventing flow away from said gas-turbine power system to prevent flow away from said gas turbine when the supercharging fans are not running.

62. The supercharger of claim 61, wherein said plurality of supercharging fans have different flow capacities.

63. The supercharger of claim 62, further comprising a controller that controls the operation of said supercharging fans so as to limit the gas-turbine capacity at low ambient

temperatures.

64. The supercharger of claim 63, further comprising means for varying capacity of at least one of the supercharging fans in response to a signal from said controller.

65. The supercharger of claim 64, wherein said means for varying capacity comprises means for varying the speed of said at least one of said supercharging fans.

66. The supercharger of claim 59, further comprising an air cooler located in the air stream between said supercharging fans and said gas-turbine power system.

67. The supercharger of claim 59, wherein said plurality of supercharging fans are in a series flow configuration.

68. The supercharger of claim 67, wherein said supercharging fans are axial-flow fans.

69. The supercharger of claim 68, further comprising a controller that controls the operation of said fans so as to limit gas-turbine capacity at low ambient temperatures.

70. The supercharger of claim 67, wherein said supercharging fans have approximately equal flow capacity.

71. The supercharger of claim 69, further comprising means for varying capacity of at least one supercharging fan in response to a signal from said controller.

72. The supercharger of claim 71, wherein said means for varying capacity comprises means for varying fan speed.

73. The supercharger of claim 72, wherein said means for varying capacity comprises means for varying fan-blade pitch.

74. The supercharger of claim 59, further comprising a bypass damper that allows air flow around said supercharging fans when they are not operating.

75. The supercharger of claim 59, further comprising a round duct that provides a flow path between said supercharging fans and said gas-turbine power plant.

76. In a supercharged gas turbine power plant having a gas turbine power system including a compressor, a burner, and a gas turbine, wherein an inlet air stream fed to the system is compressed by the compressor, heated by the burner, and expanded through the turbine to cause the turbine to rotate, whereby the turbine drives an electrical generator to generate electrical power; and having a supercharging system for increasing the pressure of the inlet air stream fed to the compressor to provide a pressurized inlet air stream to the compressor, the improvement comprising:

a duct having a round cross sectional area that provides a flow path between said

supercharging system and said gas-turbine power system for said pressurized inlet air stream.

77. A supercharged, power-producing gas turbine system, said system comprising:

a gas turbine subsystem and an electrical generator, said gas turbine subsystem comprising a compressor, a burner, and a gas turbine, wherein a gas turbine subsystem input airstream is compressed by said compressor, heated by said burner, and expanded through said turbine to cause said turbine to rotate, whereby said turbine drives said generator to generate electrical power;

a supercharging subsystem comprising at least one supercharging fan which increases the pressure of said gas turbine subsystem input airstream, whereby power output of said turbine and hence electrical output of said electrical generator may be increased; and

at least one fogger located upstream of said gas turbine subsystem input airstream, for providing a source of mist to humidify and cool said input airstream before it is inputted to said compressor.

78. The supercharged, power-producing gas turbine system of claim 77, wherein said at least one fogger is located upstream of said fan.

79. The supercharged, power-producing gas turbine system of claim 77, wherein said at least one fogger is located between said fan and said compressor.

80. The supercharged, power-producing gas turbine system of claim 77, further comprising a second fogger, wherein said at least one fogger is located upstream of said fan, and said second fogger is located between said fan and said compressor.

81. The supercharged, power-producing gas turbine system of claim 77, further comprising:

a system controller; wherein said system controller monitors at least one system parameter and controls operation of said at least one fogger such that as ambient temperature decreases, turbine power output, which otherwise would increase with decreasing ambient temperature, does not exceed maximum supercharged summer-peaking power output.